

Amendment to the Description

Please replace paragraphs at page 9, lines 26 through page 11, lines 10 with the following amended paragraphs:

Turning now to Fig. 4, an exemplary OFDM receiver 60 200 is configured to receive an RF-modulated OFDM carrier signal from a remote location. An RF receiver 70 205 typically includes an antenna 72 210, a low noise amplifier (LNA) 74 215, an RF band-pass filter 76 220, an automatic gain control (AGC) circuit 77 225, an RF mixer 78 230, an RF carrier frequency local oscillator (LO) 80 235, and an analog band-pass filter 82 240. RF receivers are well known in the art and may include many variations, such as using a single mixing stage, and providing additional signal conditioning: e.g., amplifiers, filters, and/or attenuators.

Through the antenna 72 210, the RF receiver 70 205 couples in the RF OFDM-modulated carrier signal after it has passed through a wireless channel. Then, by mixing the received signal with a receive carrier of frequency f_{RF} , generated by the RF LO 80 235, the RF receiver 70 205 down-converts the RF OFDM-modulated carrier signal to obtain an intermediate frequency (IF) OFDM signal. Thus, one source of phase error results from the frequency difference between the receive carrier and the transmit carrier, thereby contributing to a carrier frequency offset, γf_c .

Further, the received IF OFDM signal then feeds into both a first IF mixer 84 245' and a second IF mixer 86 245'', to be mixed with an in-phase IF signal and a 90° phase-shifted (quadrature) IF signal, respectively, to produce in-phase (I) and quadrature (Q) OFDM analog baseband signals, respectively. The in-phase OFDM signal that feeds into the first IF mixer 84 245' is produced by an IF LO 88 250. The 90° phase-shifted IF signal that feeds into the second IF mixer 86 245'' is derived from the in-phase IF signal of the IF LO 88 250, by passing the in-phase IF signal through a 90° phase shifter 90 before feeding it to the second IF mixer 86 245''.

The in-phase and quadrature OFDM signals then pass into respective analog-to-digital (A/D) converters 92 260' and 93 260'', within which they are digitized at a sampling rate determined by a local clock circuit 94 265. The A/D converters 92 260', 93 260'' produce digital

samples that respectively form in-phase and quadrature discrete-time OFDM signals. The difference between the sampling (i.e., clock) rates of the receiver and that of the remote transmitter leads to another source of phase error, referred to as the sampling rate offset,

$$\Delta f_{ck} = \Delta f_{ck_R} - \Delta f_{ck_T} \quad (1)$$

The unfiltered in-phase and quadrature discrete-time OFDM signals from the A/D converters 260', 260'' 92, 94 then generally pass through respective digital low-pass filters 96 270' and 98 270''. The output of low-pass digital filters 96 270' and 98 270'' respectively provide filtered in-phase and quadrature samples of the received OFDM signal. In this way, the received OFDM signal, is converted into in-phase and quadrature samples that represent the real and imaginary-valued components, respectively, of the complex-valued OFDM signal. These in-phase and quadrature samples of the received OFDM signal are then delivered to a digital signal processor (DSP) 400 275 for further processing. Note that in some conventional implementations of the receiver 60, the A/D conversion is done before the IF mixing process. In such an implementation, the mixing process involves the use of digital mixers and digital frequency synthesizer. Also note that in many conventional implementations of the receiver 60 200, the A/D conversion is performed after the filtering.